DIV. C CHEMISTRY LAB EQUIPMENT LIST

See General Rules, Eye Protection & other Policies on www.soinc.org as they apply to every event.

Each team may bring any or all of the items listed below for use in Division C Chemistry Events. Teams not bringing these items will be at a disadvantage as Event Supervisors will not provide the listed lab equipment. A penalty of up to 10% may be given if a team brings prohibited lab equipment to the event.

Item	Expected Use
Box	Containing all of the kit materials
Graduated Cylinders (10 - 100 mL)	Measuring volumes
Beakers (50 - 500 mL)	Doing reactions, developing chromatograms
Erlenmeyer Flasks (10 - 250 mL)	Doing reactions
Test Tubes	Mix Chemicals, heat chemicals
Test Tube Brush	Clean Test Tubes
Test Tube Holder	Holds test tubes for heating
Test Tube Rack	Hold Test Tubes
Spot Plates	For semi-micro scale reactions, testing solubility, pH
Petri Dishes	Doing reactions, developing chromatograms
Slides	To put hairs, crystals, or fibers on for use with a microscope
Cover Slips	To cover & prevent items from coming off slides
Droppers	Add small amounts of liquids to reactions
Spatulas or spoons	Getting small amounts of solids out of containers
Metal Tongs, Forceps, or Tweezers	Holding & retrieving objects
Stirring Rods	Stirring mixtures
Thermometer	Determining the temperature of a solution
pH paper/meter	Test acidity or alkalinity of solution
Hand Lens	Magnification of small items for identification
Flame Loop	For identification of ions in a compound
Filter Paper	Filter solids from liquids
Funnel	Hold Filter Paper
9V battery	Electrolysis
Alligator Clip Wires	Connecting meters to metals
Nail	Electrolysis
Piece of Cu metal	Electrolysis
Piece of Zn metal	Electrolysis
Multimeter	Measuring current, voltage, and resistivity
9V or less Battery Conductivity Tester	Determining ionic strength of solution
Calipers - mechanical, not digital	Measuring lengths very precisely
Paper Towels	Cleaning
Pencil	Writing, Marking Chromatogram
Ruler	Measuring lengths
Magnets	For extraction and identification of iron filings
Cobalt Blue Glass	To filter out any sodium that might contaminate flame test from hands

CALCULATOR CLASS DESCRIPTIONS

See General Rules, Eye Protection & other Policies on www.soinc.org as they apply to every event.

The following document was prepared to offer some guidance to teams as they select calculators for use in different Science Olympiad events. **The calculator class listed in the event rules is the most complex calculator level allowed for the event. It is acceptable to use a lower calculator class in the event (e.g., if Class III calculators are allowed for the event, then students are therefore allowed to use Class I, Class II, or Class III calculators).**
By no means are the calculators listed here inclusive of all possible calculators; instead they are offered as common examples. The decisions of the event supervisors will be final.



Class I - Stand-alone non-graphing, non-programmable, non-scientific 4-function or 5-function calculators are the most basic type of calculators and often look like the one shown to the right. These calculators are limited to the four basic mathematics functions and sometimes square roots. These calculators can often be found at dollar stores.

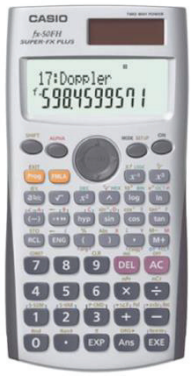


Class II - Stand-alone non-programmable, non-graphing calculators look like the calculator to the right or simpler. There are hundreds of calculators in this category but some common examples include: CASIO FX-260, Sharp EL-501, and TI-30X.



Class III - Stand-alone, programmable, graphing calculators and **stand-alone non-graphing, programmable calculators,** often look like the calculator shown on the right. Some examples are: Casio 975 0/9850/9860, HP 40/50/PRIME, and TI 83/84/89/NSPIRE/VOYAGE.

To identify a stand-alone non-graphing, programmable calculator look for the presence of the 'EXE' button, the 'Prog' button, or a 'file' button. Examples include but are not limited to: Casio Super FXs, numerous older Casio models, and HP 35S. A calculator of this type with the buttons labeled is shown to the right.



Class IV - Calculator applications on multipurpose devices (e.g., laptop, phone, tablet, watch) are not allowed unless expressly permitted in the event rule.



EYE PROTECTION GUIDE

See General Rules, Eye Protection & other Policies on www.soinc.org as they apply to every event.

This resource was created to help teams comply with the Science Olympiad Policy on Eye Protection adopted on July 29, 2015 and posted on the Science Olympiad Website (soinc.org).

Participant/Coach Responsibilities: Participants are responsible for providing their own protective eyewear. Science Olympiad is unable to determine the degree of hazard presented by equipment, materials and devices brought by the teams. Coaches must ensure the eye protection participants bring is adequate for the hazard. All protective eyewear must bear the manufacturer's mark Z87. At a tournament, teams without adequate eye protection will be given a chance to obtain eye protection if their assigned time permits. If required by the event, participants will not be allowed to compete without adequate eye protection. This is **non-negotiable**.

Corresponding Standards: Protective eyewear used in Science Olympiad must be manufactured to meet the American National Standards Institute (ANSI) standard applicable at its time of manufacture. The current standard is ANSI/ISEA Z87.1-2015. Competitors, coaches and event supervisors are not required to acquire a copy of the standard. The information in this document is sufficient to comply with current standards. Water is not a hazardous liquid and its use does not require protective eyewear unless it is under pressure or substances that create a hazard are added.

Compliant Eyewear Categories: If an event requires eye protection, the rules will identify one of these three categories. Compliance is simple as ABC:

CATEGORY A

- Description: Non-impact protection. They provide basic particle protection only
- Corresponding ANSI designation/required marking: Z87
- Examples: Safety glasses; Safety spectacles with side shields; and Particle protection goggles (these seal tightly to the face completely around the eyes and have direct vents around the sides, consisting of several small holes or a screen that can be seen through in a straight line)

CATEGORY B

- Description: Impact protection. They provide protection from a high inertia particle hazard (high mass or velocity)
- Corresponding ANSI designation/required marking: Z87+
- Example: High impact safety goggles

CATEGORY C

- Description: Indirect vent chemical/splash protection goggles. These seal tightly to the face completely around the eyes and have indirect vents constructed so that liquids do not have a direct path into the eye (or no vents at all). If you are able to see through the vent holes from one side to the other, they are NOT indirect vents
- Corresponding ANSI designation/required marking: Z87 (followed by D3 is the most modern designation but, it is not a requirement)
- Example: Indirect vent chemical/splash protection goggles

Examples of Non-Compliant Eyewear:

- Face shields/visors are secondary protective devices and are not approved in lieu of the primary eye protection devices below regardless of the type of vents they have.
- Prescription Glasses containing safety glass should not be confused with safety spectacles. "Safety glass" indicates the glass is made to minimize shattering when it breaks. Unless these glasses bear the Z87 mark they are not approved for use.

Notes:

1. A goggle that bears the Z87+ mark and is an indirect vent chemical/splash protection goggle will qualify for all three Categories A, B & C
2. VisorGogs do not seal completely to the face, but are acceptable as indirect vent chemical/splash protection goggles